1998-99 FUNGICIDE REPORT

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Melting Out Fungicide Trial, 1999

The 1999 melting out (*Dreschlera poae*) fungicide trial was conducted at the Hancock Turfgrass Research Center on the MSU campus in E. Lansing, MI on irrigated Kenblue Kentucky bluegrass (*Poa pratensis*) turf maintained at 1 ½ " height of cut. The study area was fertilized in late 1998 at 1 lb nitrogen per 1000 sq ft and on May 31, 1999 and June 9 at 0.125 lb nitrogen per 1000 sq ft.

Treatments were applied to 4 replicate plots in a random complete block design using a CO_2 powered backpack small plot sprayer operating at 32 PSI and a volume of 48 GPA. We utilized a double nozzle boom with 8002E flat fan nozzles. Preventive applications were made initially on May 9, with subsequent applications being made at the intervals cited in the data table.

At the time of the rating (June 17, 1999), the 10 day treatment had been applied four times (5/9, 5/20, 5/29, 6/8), the 14 day treatments had been applied three times (5/9, 5/23, 6/5), and the 21 day treatments had been applied twice (5/9, 5/29).

As the data indicates (table 1), all treatments gave statistically significant control of melting out when compared to the untreated controls. Disease pressure was moderate this year due to a warm, relatively dry spring. Therefore, treatment separation related to subtle rate and interval differences was not evident.

No quality differences were evident, nor was any phytotoxicity observed at any time during the study duration.

Table 1. Melting Out Ratings – 1999

Rating Scale: 1 = less than 10% of leaves infected, with no thinning or discoloration, 10 = 100%of leaves infected with severe thinning and browning.
Rating Date: June 17, 1999

Treatment	Rate per 1000 ft²[b]	Interval (days)	Mean (LSD - .05)[a]
Ch. 26GT	4 fl oz	21	1.3 A
Polyoxorim-Zn	4 oz	14	1.3 A
Polyoxorim-Zn	8 oz	14	1.3 A
Daconil Ultrex	3.7 oz	10	1.5 A
Polyoxorim-Zn	8 oz	21	2.0 A
Polyoxorim-Zn + non-ionic surfactant	4 oz + 0.25%v/v	14	2.0 A
Compass	0.15 oz	14	2.0 A
Compass	0.1 oz	14	2.0 A
Control	—	—	4.5 B

[a]Treatments followed by the same letter are not significantly different from each other (Least Significant Differences Test - .05).
[B]R.ates are formulated product.

TAKE-ALL PATCH FUNGICIDE TRIALS, 1999

The 1999 take-all (*Gaeumannomyces graminis*) fungicide studies were established on irrigated creeping bentgrass (*Agrostis palustris* Huds.) fairways on the Whittaker Woods Golf Course in New Buffalo, MI, and on the Lynx Golf Course in Otsego, MI. The duplicate studies were laid out in a randomized complete block design with 4 replications, and a plot size of 6' x 18'. This larger plot size was

The study was set up in a randomized complete block design with four replications. Plots measured 2' x 4.5' with 0.5' alleys. Fungicide treatments were applied beginning on July 2 with subsequent applications made at intervals specified below. Seven day interval treatments were applied 6 times, 14 day treatments 3 times, and 21 and 28 day treatments were applied twice each. Fungicide applications were made using a CO_2-powered backpack sprayer with a single 8002E flat fan TeeJet nozzle at 36 psi and a rate of 48 GPA. The entire plot area was inoculated with *Rhizoctonia solani* growing on sand/cornmeal inoculum at 2.5# 1000 ft^{-2} on June 22 and July 15 and 21. Plots were covered with a blue vinyl tarp and/or opaque plastic trays during periods when weather was conducive to disease development. On July 30, Koban was applied over the entire study area for the control of Pythium blight. Data collected were visual estimations of % plot area blighted. Data were analyzed using ANOVA and means separated with LSD (p=0.05.)

As can be seen in the table below, there were no significant differences between the control and any treatments on the 29 July rating date. However, on the 3 August rating date, many standards including Heritage, Fore, Compass and a Compass + Banner Maxx tankmix performed well. This study exhibited poor disease distribution with strong disease development in some areas and little pressure in others resulting in large amounts of disease variability.

Table 6. Preventive Brown Patch Ratings.

Treatment	Rate/1000ft²	Interval (Days)[b]	% Brown patch[a] 29-Jul[c]	3-Aug
Heritage	0.2 oz	14	0.6 b	1.0 h
Heritage	0.4 oz	28	1.6 b	2.0 gh
Compass 50 WG + Banner Maxx 50 WG	0.15 oz + 1 fl oz	21	2.6 b	5.8 f-h
Fore	4 oz	7	6.3 b	5.8 f-h
Eminent 125 SL	2 fl oz	14	8.5 b	6.0 e-h
Compass 50 WG	0.15 oz	14	11.0 ab	9.0 d-h
Compass 0.7 MEC	0.85 fl oz	14	4.9 b	9.3 d-h
Eminent 125 SL	4 fl oz	21	11.3 ab	10.3 c-g
3336 WP + Compass	2 oz + 0.1 oz	14	10.5 ab	10.5 c-g
Eminent 125 SL	4 fl oz	14	10.5 ab	11.8 b-f
RH-0611 (Maximum)	10 oz	14	6.4 b	13.5 a-f
3336 WP alternating w/ Compass	4 oz alt. 0.2 oz	14 alt 14	6.8 b	13.8 a-f
Dac. Ultrex	3.8 oz	14	10.5 ab	13.8 a-f
WAC 74 + 3336 WP	2 oz + 4 oz	14	9.3 b	15.0 a-e
Echo 75 WDG	4.2 oz	14	5.5 b	16.3 a-d
Control			11.8 ab	19.3 a-c
WAC 74	2 oz	14	21.3 a	20.0 ab
Spectro 90 WDG	4 oz	14	21.3 a	22.5 a

[a]Numbers represent the % plot area blighted. Mean of 4 replications.
[b]Seven day treatments were applied on 7/2, 7/8, 7/15, 7/23, 7/30, and 8/6, 14 day treatments on 7/2, 7/15, and 7/30, 21 day treatments on 7/2 and 7/23, and 28 day treatments on 7/2 and 7/30.
[c]Means followed by the same letter do not significantly differ (LSD, p=0.05.)

Curative Brown Patch Fungicide Trial, 1999

This study was a curative brown patch study conducted at the Hancock Turfgrass Research Center on the campus of MSU, E. Lansing, MI on a Pennlinks creeping bentgrass research green. The disease developed naturally without artificial inoculation. The green was mowed at 0.157", fertilized monthly with 0.5 lbs nitrogen 1000 ft^{-2}, and watered as needed to maintain turf vigor. The study was set up in a randomized complete block design with 4 replications and plots which measured 2' x 4.5' with 6" alleys. Fungicide treatments were applied using a CO_2–powered backpack sprayer with a single 8002E flat fan nozzle at 36 psi at a rate of 48 GPA. Treatments were applied beginning on 24 July with subsequent applications made according to the intervals listed below. The final applications were made on 3 September. Seven-day treatments were applied 6 times, 14-day treatments 4 times, 21-day treatments 3

times, and the 28-day treatments twice. Plots were covered with a blue vinyl tarp as needed to encourage further disease development. Disease ratings were visual estimations of percent plot area blighted. An initial disease rating was taken on 24 July. Data were analyzed with repeated measures ANOVA with a covariate for the disease rating taken prior to treatment. Means were separated using LSD.

The 30 July rating was taken 6 DAT and several treatments including Prostar, Heritage, and Echo 75 WDG provided significant recovery compared to the untreated control plots. In addition, treatments such as Maximum, Compass, WAC 74 and 3336 WP tankmix and alternation with Compass provided significant recovery compared to the untreated control. By the 3 August rating (10 days after initial treatment), most treatments provided significantly faster recovery than the untreated control. Those treatments that provided the best curative control were Daconil Ultrex, Compass, 3336 WP alternated with and tank mixed with Compass, Fore, Heritage, Prostar, Eminent (4 fl oz), and Echo. None of these treatments were significantly different from each other. The turf was fully recovered 17 days after the initial treatments were applied.

Table 7. Curative Brown Patch Ratings

Treatment	Rate/1000ft²	Interval (Days)[b]	% Brown patch[a] 30-Jul[c]	3-Aug
Dac. Ultrex	3.8 oz	14	31.3 a-d	5.5 q
Compass 50 WG	0.15 oz	14	31.3 c-h	12.5 pq
Fore	4 oz	7	22.5 b-h	5.8 o-q
Heritage	0.2 oz	14	20.0 c-h	4.3 o-q
3336 WP alternating w/ Compass	4 oz alt. 0.2 oz	14 alt 14	26.8 c-h	11.3 o-q
Heritage	0.4 oz	28	15.0 d-l	4.0 n-q
Prostar	2.2 oz	14	22.5 c-k	11.8 m-q
Eminent 125 SL	4 fl oz	14	38.8 a	15.0 l-q
Echo 75 WDG	4.2 oz	14	16.3 c-l	6.3 j-q
3336 WP + Compass	2 oz + 0.1 oz	14 + 14	16.3 c-j	7.0 k-q
Compass 0.7 MEC	0.85 fl oz	14	26.3 -f	13.0 l-p
WAC 74 + 3336 WP	2 oz + 4 oz	14 +14	33.8 a-c	18.0 g-o
RH-0611 (Maximum)	10 oz	14	13.8 c-l	5.8 h-p
Eminent 125 SL	4 fl oz	21	25.5 a-e	11.8 g-o
Spectro 90 WDG	4 oz	14	25.8 b-f	17.5 g-n
Compass 50 WG + Banner Maxx 50 WG	0.15 oz + 1 fl oz	21 + 21	25.0 a-e	16.3 f-m
WAC 74	2 oz	14	11.0 c-k	9.0 e-m
Eminent 125 SL	2 fl oz	14	27.5 a-f	23.0 c-l
Control	—	—	32.5 ab	27.5 a-f

[a]Numbers represent the % plot area exhibiting disease symptoms. Mean of 4 replications.
[b]Seven day interval treatments were applied on 7/24, 8/10, 8/13, 8/20, 8/27, and 9/3, the 14 day treatments on 7/24, 8/10, 8/20, and 9/3, the 21 day treatments on 7/24, 8/13, and 9/3, and the 28 day treatments on 7/24 and 8/20.
[c]Means followed by the same letter do not significantly differ (LSD, p=0.05.)

Summer Stress Syndrome in Bentgrass, 1999

This trial was conducted on a Penncross creeping bentgrass green at the Hancock Turfgrass Research Center, E. Lansing, MI. The plot area was mowed at 0.157" and fertility was as listed below with all applications being made on a 30-day schedule. The study was set up in a randomized complete block design with four replications of each treatment. Plots measured 2' x 4.5' with 1' alleys. All treatments were applied on a 14-day interval. Treatments were applied using a CO backpack sprayer and a single 8002E tee-jet flat fan nozzle. All treatments were applied beginning on May 21, 1999. Chipco 26GT was applied to the entire plot area on 7/23 (2 oz.), 8/15 (4 oz.), and 8/31 (4 oz.) to prevent severe loss in our control plots due to dollar spot outbreaks. Quality ratings were taken using a 0 to 10 scale, where 0 = poor, 10 =excellent, and 7 = acceptable. Data were analyzed using ANOVA and means separated with LSD (p=0.05).

The Chipco Aliette Signature + Daconil Ultrex + fertilizer combination provided good turf quality